REMARKS

In the July 19, 2000, Office Action the Examiner rejected Claims 1, 2, 5, 6, and 8-19 on the grounds that such Claims were taught by United States Patent No. 5,605,505 to Han under 35 USC §102(b). Han does not teach Applicants' invention because Han discloses infrared signal transmission and specifically describes transmission in the range between 38 and 100 kHz. Conversely, Applicants' Claims require a radio frequency sender and radio frequency sender, and this innovation provides unique benefits described below.

The Examiner also rejected Claims 3, 4, and 7 under 35 USC §103 as being unpatentable over Han in view of Ogata et al. Neither of these references anticipate Applicants' invention, either individually or when viewed in combination.

Han teaches infrared signal transmission for two game controllers as an improvement over one infrared signal controller in combination with a hard-wire controller. By using two different frequencies (38 kHz versus 100 kHz), the signals did not overlap and two "wireless" controllers could be used simultaneously. Ogata et al. taught hard-wired game controllers of the type described by Han and by Applicants as prior art unrelated to the field of wireless transmission. Applicants' innovation of radio frequency transmission for game controller use uniquely provides benefits not anticipated by Han or other prior art wireless game controller references.

Infrared signal transmission is typically unidirectional and depends on line-of-sight which can be interrupted by different factors. Electronic game devices use hand held controllers to integrate the user into the game program. A person or pet can move

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through the signal during transmission, thereby interrupting game play. Additionally, the line-of-sight transmission path depends upon directional pointing of the game controller toward the electronic game device. This requirement limits movement by the user, and an excited user can inadvertently break the transmission path and interrupt game play merely by pointing the game controller in the wrong direction. Game controller movement of merely thirty degrees can break the transmission path. Even if the game controller movement is insufficient to break the signal transmission, feedback infrared signals from the game device will be reflected or partially reflected, thereby reducing the power received by the remote game controller.

Conversely, the radio frequency transmission taught by Applicants is not susceptible to signal interruptions caused by physical movement of the game controller, or by persons or pets moving between the game controller and an electronic game device.

In addition to such line-of-sight limitations, infrared signal transmission is light based and is interruptable by ambient light sources. Fluorescent lights can interfere with infrared signal transmissions, and interference from other infrared game controllers necessarily limits the number of game controllers operable within a selected frequency range. The radio frequency signals used by Applicants are not interruptable by scattered light as are infrared transmissions.

The significantly lower frequency ranges taught by Han depend upon an efficient quarter wave antenna of 750 meters at 100 kHz and 1973 meters at 38 kHz. Although antennas are not used in infrared transmissions, antenna length is a significant consideration in the signal integrity. By teaching radio frequency transmission, Applicants eliminate any need for external antennas and also provide for significantly

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higher data transmission rates desired for game controller use. A broader spectrum message signal can be modulated by the invention and more advanced analog input types such as analog joysticks, analog force sensitive buttons, and accelerometers can be incorporated into the game controllers. There is no teaching in Han or other wireless game controller devices of radio frequency operation, nor is there any suggestion by Han than such operation would be possible or desirable.

The Examiner suggested that "Han also discloses using a form of time domain multiplexing to convey different items of information using separate time intervals", however Applicants respectfully disagree with this interpretation of Han's teaching because this conclusion does not accurately state the various functions provided by Applicants' time domain multiplexing. Han merely taught two different frequencies (38 kHz versus 100 kHz) for simultaneous operation of two different game controllers. Han did not permit more than one game controller to be operable on the same frequency, and would require more than one game controller to be tethered together with multiple hard-wired game controllers. An unsupported statement that the transmitter disclosed by Han is capable of time domain multiplexing does not teach or suggest the transmission functions disclosed by Applicants.

In contrast, Applicants' invention permits time division multiplexing of the signals from two or more non-tethered game controllers which can operate on the same frequency in one embodiment of the invention. Because the game controllers can each have a unique address and integrated collision avoidance capabilities, additional game controllers can be dynamically added or deleted during game play. Additionally, the invention permits the unique capacity to change addresses so that the user can change

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receivers or can change between different games with the same receiver. The ability to change addresses also permits automatic frequency shifts to avoid signals where local frequencies experiences noise or undesirable power loss.

Applicants' invention uniquely provides radio frequency transmission for game controllers having significant advantages not achievable with infrared signal game controllers. Applicants believe that the pending Claims as amended are patentably distinct over the record prior art and respectfully request allowance of the pending Claims.

Respectfully submitted,

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